

REMARKS

Claims 1, 3-9, 12-14 and 16-17 stand rejected under 35 USC 102(b) as being anticipated by Cabasso. Claims 1, 3-9, and 12-17 stand rejected under 35 USC 102(e) as being anticipated by Prakash. Claims 1, and 3-11 stand rejected under 35 USC 102(b) as being anticipated by Campbell. Claims 1, 3-14 and 16-17 stand rejected under 35 USC 103(a) as being unpatentable over Campbell in view of Cabasso. Claims 15 and 18 stand rejected under 35 USC 103(a) as being unpatentable over Cabasso in view of Muller. Claims 15 and 18 stand rejected under 35 USC 103(a) as being unpatentable over Campbell in view of Cabasso and Muller. Claim 18 stands rejected under 35 USC 103(a) as being unpatentable over Prakash in view of Muller. These rejections are respectfully traversed.

Claim 1 is the only independent claim in this application and specifies that “a ratio of the amount of unfreezable water, represented by formula (S1), in said polymer electrolyte is no less than 40 wt% and no greater than 100 wt%, wherein the ratio of amount of unfreezable water (S1) = $(\text{amount of unfreezable water}) / (\text{amount of low melting point water} + \text{amount of unfreezable water}) \times 100 (\%)$ and wherein the ratio of the amount of unfreezable water in the polymer electrolyte to the weight of the polymer electrolyte when dried, which is represented by formula (S2), is no less than 20% and no higher than 200%, wherein the content of unfreezable water (S2) = $(\text{amount of unfreezable water in polymer electrolyte}) / (\text{weight of polymer electrolyte when dried}) \times 100 (\%)$.”

As explained in the last response dated January 20, 2011, the prior art does not disclose a polymer electrolyte that has water with the claimed “state of existence,” such that the claimed amount of unfreezable water (S1) and content of unfreezable water (S2) are satisfied. Further, the prior art also does not suggest any reason to adjust the composition of the electrolyte to satisfy these claimed formula. In addition, a table was provided in the response dated January 20, 2011. The table shows that the Examples that complied with the claimed amount of unfreezable water (S1) and

content of unfreezable water (S2) had unexpectedly superior conductivity and suppression of fuel crossover than the Comparative Examples that did not comply with these formulas. Further, this table also shows that not all electrolytes inherently have these claimed features.

In the pending Action, the Examiner admits that the prior art does not disclose the claimed amount of unfreezable water. *See* Action page 2, lines 23-26. However, the Examiner appears to ignore the formulas requiring “a ratio of the amount of unfreezable water, represented by formula (S1), in said polymer electrolyte is no less than 40 wt% and no greater than 100 wt%,” and “the ratio of the amount of unfreezable water in the polymer electrolyte to the weight of the polymer electrolyte when dried, which is represented by formula (S2), is no less than 20% and no higher than 200%.”

According to the Examiner, the “formula disclosed in claim 1 is not ‘state of existence’ or water within the electrolyte, but merely a method of measure properties of the polymer electrolyte.” *See* Action, page 12, lines 7-9. The Examiner is incorrect. To support this erroneous conclusion, the Examiner cites to paragraph [0019] of the specification, which states: “The ratio of the amount of unfreezable water, represented by formula (S1) and the content of unfreezable water, represented by formula (S2), are found in accordance with a **differential scanning calorimetry analysis (DSC)** method.” DSC is used to measure the properties of the polymer. But the formulas disclosed in claim 1 are not merely a method of measuring properties of the polymer, but actually relate to the amount of unfreezable water/state of existence of the water in the electrolyte. As stated in paragraph [0019], a polymer electrolyte is “immersed in water” at 20°C for 12 hours. The “state of existence” of the water within the electrolyte is then measured. However, if a polymer electrolyte is vacuum dried for 24 hours at 110°C in a vacuum drier, the “state of existence” of the water within the electrolyte would not be found.

Since the cited art does not disclose or suggest a polymer electrolyte that has water with the claimed "state of existence," such that the claimed amount of unfreezable water (S1) and content of unfreezable water (S2) are satisfied, the rejections of claims 1 and 3-18 should be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, applicants petition for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. **360842012600**.

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Respectfully submitted,

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